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BOARD OF EDUCATION.
WHITEHALL, LONDON, S.W.

BUILDING REGULATIONS

FOR

PUBLIC ELEMENTARY SCHOOLS

BEING

PRINCIPLES TO BE OBSERVED IN

PLANNING AND FITTING UP NEW BUILDINGS
IN ENGLAND.

(EXCLUDING WALES AND MONMOUTHSHIRE.)

(IN FORCE FROM 1ST SEPTEMBER, 1914.)

Presented to both Houses of Parliament by Command of His Majesty.



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PREFATORY NOTE.

Character of the Regulations.

(i) The Board's Building Regulations are partly a statement of principles of school planning upon which the Board proceed in criticising the plans submitted to them, and partly a statement of what the Board believe to be the best current practice in the application of those principles. Taken as a whole, the regulations are not a code of precise and definite rules with which compliance is required. A great part of the regulations does not admit of expression in the form of requirements, and their main object is to facilitate co-operation between the Board of Education and the Local Government Board on the one hand, and Local Education Authorities and school architects on the other, in securing the greatest amount of comfort, convenience and suitability which a reasonable expenditure can be made to yield. The combination of efficiency and economy is the perpetual problem of the school architect. In endeavouring to raise the standard of efficiency, the Board of Education are bound to have regard to economy, because the funds available for school buildings are not unlimited, and extravagance in particular cases is bound to hamper that all-round improvement which the national interest demands. Moreover, the Board must take into consideration the fact that an improvement, however great, in the premises of Public Elementary Schools will be of little educational benefit if it is accompanied by a tendency to check improvements in the qualifications and numbers of the teachers employed and to restrict expenditure in other necessary directions. The problem for the Board of Education is in some respects even more difficult than it is for the architect or the member of the Local Education Authority who is responsible to the ratepayer. On the one hand the Board must try to secure schools which will yield the greatest possible educational advantage to the rising generation, and in considering educational advantages they do not ignore the effect of beauty of design, material or decoration, on the minds of the children or of their parents whose respect for and belief in education are essential to progress. On the other hand the Board have to take account of the present state of public opinion, whether expressed in Parliament or in the Municipal Assemblies to whom Parliament has committed responsibility for the local administration of education, and while endeavouring to influence public opinion in the direction which they believe to be beneficial to the Nation they cannot ignore the risk of provoking reaction. In this, as in other departments of administration, some degree of compromise is inevitable.

(ii) The present regulations are the outcome of discussions which have taken place during the last six years in numerous particular cases between the Board's Officers and the Officers and Architects of Local Education Authorities and Governing Bodies; they have also been submitted in draft to certain bodies and individuals whose experience specially qualified them to advise the Board in the matter. The Board gratefully acknowledge the assistance they have received; and while they take entire responsibility for the present form of the regulations, they hope that they represent a very general consensus of opinion both of professional architects and of other persons engaged in educational administration.

Need for New Regulations.

(iii) The last issue of the Regulations was made in 1907, and experience has shown (as indeed was to be expected in a matter in which progress has been so rapid and development is so continuous) that a fresh statement of principles and of their applications is required, involving some not unimportant modifications of Regulations issued seven years ago. In school-planning certain principles are tolerably well settled; but the modes in which even the most firmly established may be applied, and the standards by which they are tested in concrete cases, are subject to change. Theory and practice alike are constantly developing, with a tendency, it may be, towards restriction and uniformity in some directions, towards relaxation and variety in others. The principal modifications in the present issue relate to design as affected by ventilation, to disposition of buildings on the site, to size and organisation of departments, and to extent and character of facilities for physical exercises, play, and organised games, whether for older or younger children.

Arrangement of the Regulations.

(iv) In this new edition the arrangement of the Regulations has been revised. The division into two parts, one dealing with principles and one with hygienic and sanitary requirements, has proved to be inconvenient. All the regulations that refer to one subject are now grouped under the same heading, though it has not been possible to make the several sections mutually exclusive, and some repetition has been found unavoidable. In the order adopted sites, playgrounds, and general considerations are first dealt with; next, a list is given of all the rooms which may be found in a Public Elementary School; then detailed provisions are set out with regard to each of these rooms. The following chapters deal with ventilation and heating, construction and materials, and water supply. At the end the procedure for obtaining approval of plans is set out. The Appendices comprise a note giving some instances of school-organisation and memoranda by the Local Government Board on Loan Procedure and on Drainage.

Congested Areas.

(v) It may not be easy to apply all the principles laid down in Chapter I. of the regulations to districts in the centre of large towns. The Board will be prepared to consider specially any cases of difficulty that may arise in such districts, but they will require to be satisfied that no departure is to be made from the regulations that is not either inevitable or desirable in the circumstances of the particular case. It has sometimes been found possible to make provision for such districts by placing the necessary school buildings in less congested areas which are accessible for children from the more crowded parts.

New Materials and Methods.

(vi) The possibility of reducing the cost of Public Elementary Schools by the use of materials or methods of construction different from those usually employed at present is discussed in the Report of the Departmental Committee on the cost of School Buildings, 1911 (Cd. 5534) (*to be purchased, either direct or through any Bookseller, from Wyman and Sons, Ltd., Fetter Lane, E.C., price sixpence; by post, eightpence*).

Discussion of Plans.

(vii) The Board will at all times be glad to place their experience at the disposal of the promoters of a new school, or to discuss a building scheme either before the preparation of plans, or while the drawings are in a preliminary stage. They will be ready to give careful and, so far as possible, favourable consideration to individual designs or experimental modes of treatment which School Authorities and their Architects may propose to adopt to meet the special exigencies of particular cases.

Existing Buildings.

(viii) These Regulations do not constitute a standard by which the recognition of existing premises can be determined; and they are plainly unsuitable for any rigid application to proposals for alterations to existing buildings. Such cases must be dealt with individually as they arise, with reasonable regard to the principles set forth in the Regulations.

L. A. Selby-Bigge.

July 1914.

REGULATIONS.

CHAPTER I.—SITES AND PLAYGROUNDS.

Choice and General Treatment of Site.

1. The site for a new School should be carefully chosen. If possible, it should be in an open situation, and have no undesirable surroundings. It should not be exposed to noise or dust from roads, streets, tram-lines, railways or works. It should be such that the building can either be set well back or have its class-rooms on a side away from the street or road, so that there may be no difficulty in keeping their windows open, and it should allow of classes being taken in the playground.

2. In towns the site should, where possible, be within reach of any public park or central playground in which there are opportunities for open-air education and organised games.

3. There should be convenient access to the site. Entrances and exits on to main-roads should as far as possible be avoided. Where they are unavoidable the provision of barriers has been found to be a valuable safeguard.

4. The site should be open to the sun, both for the sake of the general health of the scholars and teachers, and because the ventilation of the building is then easier. It should secure the best aspect possible for the class-rooms, which is South-East. In the warmer parts of England East may be a better aspect than South. Rooms which face South-West get little sun in the early part of the day, while subsequently they are apt to get too much. Windows which look to quarters other than these should, so far as possible, be those of corridors, staircases, cloak-rooms, cookery rooms and the like.

5. The site should, if possible, be sufficiently large, open and level to allow all the rooms to be on the ground floor. It is in any case desirable that the building should be on not more than two floors. A building on three floors is open to many objections, and should only be necessary in special circumstances, as, for example, where land is very costly, or where it is otherwise impossible to get adequate area for playgrounds.

6. In selecting a site regard should be had to the configuration and nature of the ground in order to avoid unnecessary expense in building.

7. The most should be made of any natural advantages which the site may possess. Pleasant views should be left open instead of being shut off by high boundary walls. Provided that the playground proper is not interfered with, dull walls may be covered with creepers and bordered with flower beds. If it is consistent with the proper lighting of the school, any large trees may well be preserved to give shade in summer to open air classes.

8. In laying out the ground every opportunity should be taken to provide a clear space for play, facilities for open air teaching, and where space permits, for School gardens and for organised games such as cricket and football.

Area of Site.

9. The site must include space for a playground. Where the site is expensive, the provision of a playground on the roof of the school buildings has been found in some cases to be a satisfactory device.

10.—(a) In order to provide space for a playground the minimum area required for the site should be reckoned, in the absence of exceptional circumstances, at a rate of a quarter of an acre for every 200 children, irrespective of any space required for a Teacher's or Caretaker's house, for Special Subjects Centres, or for instruction in gardening. (b) If the School is of more than one storey, or if a roof playground is provided, the area can be proportionately reduced, but in all cases the areas of playground must not be less than those stated below.

Areas of Playground.

(N.B.—In reckoning these areas, passages, forecourts and small recesses will be disregarded.)

11. Where no other provision is available for organised out-door games:—

(a) Each undivided playground for less than 200 children should provide

2,000 square feet together with—

(i) 20 square feet for each older child;

(ii) 6 square feet for each younger child.

- (b) Each undivided playground for 200 children and upwards should provide—
- (i) 30 square feet for each older child;
 - (ii) 16 square feet for each younger child.

12. Where ample and satisfactory provision exists for organised out-door games off the premises :—

- (c) Each undivided playground for less than 200 children should provide 2,000 square feet, together with—
- (i) 10 square feet for each older child;
 - (ii) 6 square feet for each younger child.
- (d) Each undivided playground for 200 children and upwards should provide—
- (i) 20 square feet for each older child;
 - (ii) 16 square feet for each younger child.

13. Where a site is very expensive, the Board may accept a playground below the measurements specified above. The precise degree of reduction from this standard will be decided by the Board on the merits of each case, but in no case will the reduction bring the playground below the measurements specified in (c) and (d) above.

Arrangement and Shape of Playground.

14. (a) Except in the case of very small Schools with accommodation for not more than 60 children, playgrounds must be separate for Boys and Girls and have separate entrances. (b) Girls and younger children may, when convenient, use the same playground, in which case it should be large enough for them to play at the same time. (c) Use of the same playground by Girls and younger children alternately will only be allowed in exceptional circumstances, and then not unless the position of the buildings is such that the noise of one Department at play will not interfere with the other at work.

15.—(a) The best shape for a playground approximates to a square. (b) The playground should be given a warm, sunny aspect. (c) The buildings should be so planned that the effective playground space will not be unduly diminished by projecting wings or buttresses.

16. (a) The playgrounds should be properly levelled, drained, and provided with a suitable surface. Cinders, large stones, grass, and loose gravel are to be avoided. (b) The drainage should be so arranged that manholes, gulleys, &c. are not placed in the central parts of the playground. (c) The playgrounds must always provide sufficient space paved, concreted or otherwise provided with a hard dry surface suitable for physical exercises in wet weather.

17. The playgrounds should be enclosed, but a high wall or close fence will not be necessary in every case. Under suitable conditions a hedge or some form of open fencing will be sufficient.

CHAPTER II.—GENERAL ARRANGEMENT OF THE BUILDING.

Division of School into Departments.

18. Before an Architect is instructed to prepare plans for a new building or for extensive additions to existing buildings, the proposed organisation of the School as regards Departments and Classes must be fully considered and settled.

The precise plan to be adopted will depend upon the number of children to be accommodated. In determining this point, allowance should be made for the fact that the number of children in attendance, especially in the highest and lowest classes, is likely to vary to a considerable degree at different periods of the year. Consideration should, however, always be given to the following principles :—

- (i) It is not desirable that a single Department should contain more than 400 children.
- (ii) When the older scholars are divided into separate Departments for Boys and for Girls respectively, good organisation is made easier, especially for Handicraft and Domestic Subjects.

(iii) The division of the children into Departments should be so made that children will ordinarily remain under the same Head Teacher for at least three years. In calculating the length of school life regard should be had to the age at which, in the particular district in question, or the particular School, the children usually leave School, or are transferred to Schools of a higher grade, and to the extent to which the Local Education Authority exercise their discretion as to the exclusion of children under the age of five.

(NOTE.—Some examples illustrating the application of principles and the treatment of problems affecting the satisfactory organisation of a school will be found in Appendix I.)

General Arrangement (see also Sections 4 and 5).

19. The general arrangement of the building should be governed by the endeavour to secure a suitable aspect, effective ventilation for the class-rooms, easy supervision by the Head Teachers, and economy in maintenance.

(a) The need for really effective ventilation and the importance of securing abundant sunlight are now generally recognised. The older type of building, compactly planned with several storeys, with a central hall off which the class-rooms open directly, is giving place to single-storeyed groups of rooms, arranged to let the sun and air into every corner.

(b) Windows of the ordinary type on one side of the room only, with some form of extract in the chimney or ceiling, and inlet tubes in the walls, can no longer be considered as providing the best form of ventilation for a class-room. Far more satisfactory results can be obtained by placing windows on opposite sides of the rooms, and so ensuring a fresh current of air. Experience has shown that if these windows are so arranged as to introduce the incoming air on a low level and to direct it upwards, and if a really adequate amount of heating is provided, an abundant supply of fresh air can be admitted all the year round. The heating surface will have to be increased above that required in the older type of rooms.

(c) Where a Hall is to be provided, its position in relation to the class-rooms will affect the planning of the building and will require careful consideration. In order that full and unrestricted use of the Hall may be secured, the class-rooms should not be so arranged as to open directly from it. If they do, it is difficult if not impossible to get free cross ventilation for them. (See Sections 33-38.)

Number and Size of Class-rooms.

20. (a) The number and size of the class-rooms to be provided for each Department depend upon the number and upon the probable size of the classes in the different parts of the School. (See Section 39). (b) In no case should every class-room be planned for the purpose of taking sixty children at one time, and as a rule there should be not less than two class-rooms for every hundred scholars.

Open-air Class-rooms.

21. The Board are prepared to consider plans showing class-rooms so arranged that one or more of their sides can be thrown completely open.

Higher Elementary Schools and "Central" Schools.

22. A Higher Elementary School, or a School of some similar and special type which is intended for older children only, should in general be planned in accordance with the principles applicable to an ordinary Public Elementary School, but it is important that the curriculum of the School should have been determined, and that it should have been generally approved by the Board, before an Architect is instructed. It must be remembered that the premises of a Higher Elementary School which is to be recognised under Chapter VI. of the Code must conform to the requirements of Article 38 (e) of the Code.

Small Schools.

23. The planning of small Schools which are to accommodate less than 150 children of all ages requires special consideration. (See Section 47.)

Economy.

24. In the style and general treatment of the building, every care should be taken to secure economy. The Board regard this as a matter of great importance. All proposals for new Schools will be carefully examined, and the Board will ask for the omission of any features that appear extravagant, and may require a modification of the whole scheme should the proposed expenditure appear unreasonably high.

The possibility that the school may require enlargement in the future should be borne in mind, and in cases where an early extension is likely to be required the future additions should form part of the original scheme, and be included in the plans submitted to the Board.

CHAPTER III.—ACCOMMODATION (WITH SCHEDULE).

25. The accommodation of the School is reckoned upon the number of places provided in the class-rooms (and in the "main-room," if any). A suitably arranged room (or rooms) for practical work, may be reckoned in assessing the number for which the School will be recognised. (*See Sections 65, 66, and 67.*)

26. The number for which any room will be counted depends not merely upon the area, but also on the lighting, the position of the doors and windows, and the general shape of the room.

27. The following list of the parts of a school building includes all the rooms which are likely to be required in any Elementary School, but it is not suggested that all the rooms mentioned are necessary in every School, and the inclusion of those printed in italics will usually require special consideration.

- (i) Entrances. (*Section 28.*)
- (ii) Staircases. (*Sections 29-31.*)
- (iii) Corridors and Verandahs. (*Section 32.*)
- (iv) Halls. (*Sections 33-38.*)
- (v) Class-rooms, and, in small schools, Main-rooms. (*Sections 39-64.*)
- (vi) Class-rooms for practical work. (*Sections 65-67.*)
- (vii) Handicraft Rooms or Centres for Boys. (*Sections 68-73.*)
- (viii) Rooms or Centres for Domestic Subjects. (*Sections 74-81.*)
- (ix) *Rooms for Advanced Drawing.* (*Section 82.*)
- (x) *Science Rooms.* (*Section 83.*)
- (xi) Rooms for younger children. (*Sections 84-93.*)
- (xii) Teachers' Rooms. (*Sections 94-95.*)
- (xiii) Store Rooms. (*Section 96.*)
- (xiv) *Rooms for Meals.* (*Sections 97-100.*)
- (xv) Rooms for the use of the School Medical Officer. (*Section 101.*)
- (xvi) Cloak-rooms. (*Sections 102-106.*)
- (xvii) Lavatories. (*Section 107.*)
- (xviii) Caretaker's cupboards, &c. (*Section 108.*)
- (xix) Closets and Urinals. (*Sections 109-118.*)
- (xx) *Baths. (Shower or spray.) (Section 119.)*

CHAPTER IV.—DETAILS OF VARIOUS PARTS OF THE BUILDING.

(i) *Entrances.*

28.—(a) Entrances must not lead directly from the outside into a Hall or other room, and must not be used as cloak-rooms. (b) Entrances should be separate for each department and each sex. (c) In large Schools more than one entrance to each department is desirable. (*See also Section 14 (a).*) (d) Entrance doors should open outwards. (e) An external door, having outside steps, requires a landing between the door and the top step.

(ii) *Staircases.*

29. There must be separate staircases for children of each sex, and each department should have its own staircases.

30. The number of staircases must be sufficient not only for daily use, but also for rapid exit in case of fire or panic. It is desirable to have a handrail on both sides of a staircase.

31. (a) Every staircase must have at least one external wall, must be of fire-resisting material, and must be well lighted in every part. (b) Staircases must be not less than 4 feet wide, and must not have more than 14 steps to a flight. The landings must be unbroken by steps. (c) Treads must be from 11 inches to 13 inches wide, and risers not more than $5\frac{1}{2}$ inches to 6 inches high. Winders must not be used.

In settling the position of the staircase, the need for easy access from the Hall to the classrooms should be borne in mind.

(iii) *Corridors and Verandahs.*

32. Corridors which should be for access only, should be from 6 feet to 8 feet wide according to the size of the School. In suitable circumstances access to classrooms may be provided by means of verandahs.

(iv) *Halls.*

33. Where a Hall is provided it should have a floor space of about $3\frac{1}{2}$ square feet for each scholar of the number for which the school is recognised, provided that, in ordinary circumstances, the area of the Hall should not exceed 1,500 square feet.

34. A single Hall may be provided for the joint or alternate use at separate times of two Departments of older children (*see Sections 91 and 92*), provided that it is so placed as to be readily accessible for each Department. In such a case the dimensions of the Hall may be increased, if it is desired, somewhat above 1,500 square feet.

35. (a) It is desirable to place the Hall so that noise in it will not disturb the work in the class-rooms. (b) For this reason, as well as for ventilation and freedom from dust, the class-rooms should not open directly from it. (c) The Hall may therefore be altogether or partly detached from the main building. (*See also Section 19 (c).*)

36. The Hall must be fully lighted, warmed and ventilated.

37. Where no Hall is provided, it is well to have two or more class-rooms so arranged that they can be thrown together. (*See also Section 47.*)

38. The arrangement of Halls for younger children requires special consideration. (*See Sections 90 to 93.*)

(v) *Class-rooms and, in small schools, "Main-rooms."*

39. The number of class-rooms should be such that there is never more than one Teacher working in each.

40. Class-rooms should vary in size according to the organisation and staffing of the school. (*See Section 20.*)

41. No class-room or "main-room" can be recognised as accommodating such a number of children as requires two adult Teachers, unless it is divided by a partition reaching to the ceiling.

42. (a) The class-rooms must not be passage-rooms from one room or part of the building to another, or from the playground or yard to any room used for teaching or to the Hall. (b) The rooms and passages should be so arranged that every room can be cleared easily and without disturbing any other room.

43. Not less than 10 square feet of floor space per head must be provided for each scholar in the class-room. (*See also Sections 87 and 93 as to younger children.*)

44. The proportions of class-rooms should be such as to allow a good arrangement of the seats. Long narrow rooms are to be avoided.

45. (a) A clear space extending the full width of the room of not less than 7 feet 6 inches in depth should be left for the Teacher. (b) There should be one foot of space left between the last row of desks and the wall. (c) There should be a gangway of not less than 1 foot 4 inches on one side of each child.

46. If there is a fire place it should be placed at the Teacher's end of the room in the corner away from the door. (*See Section 133.*)

47. *Main-rooms.*—In small schools taking children of widely different ages one of the rooms may be conveniently planned as a "main-room." A "main-room" is a room

in which a class under one Teacher can be divided into groups for the sake of efficiency and convenience in teaching. It should accordingly be rather longer than an ordinary class-room so as to admit of the groups being arranged side by side, and should be fully lighted from the two ends. Where no Hall is provided some extra space not occupied by desks may advantageously be provided in such a room. (See also Section 37.)

48. *Height of Class-rooms.*—(a) The height should not be less than 12 feet if the room has a flat ceiling. (b) If it is ceiled at the collar beam, the height should be 10 feet to the wall plate and 13 feet to the ceiling. (c) The ceiling should extend over at least half the area of the room. (d) In no case may a class-room be left open to the ridge.

49. In class-rooms arranged with corresponding windows on opposite sides these heights may be diminished by one foot, but in such cases the Board will have to be satisfied of the adequacy of the cross ventilation.

50. *Lighting of Class-rooms.* (See also Section 4.)—The area of window-glass should be approximately one-fifth of the area of the floor space.

51. The windows should be so distributed as to light every table or desk and the whole of the room evenly and sufficiently. The last vertical glass line of the window furthest from the Teacher should be on a line with the back of the last row of desks.

52. (a) Where windows are provided in one wall only, this must be the wall on the left of the scholars as seated. (b) Any additional windows should be placed in the right hand wall, but not so as to throw a stronger light from the right of the scholars than from the left. (c) Windows facing either the scholars or the Teacher are to be avoided. (d) Skylights cannot be approved in "main-rooms" or class-rooms except in special circumstances.

53. Unless the top of the window be more than 12 feet above the floor, no desk should be more than 20 feet from a window.

54. (a) The lower glass line of the main lighting windows should not be more than 3 feet 6 inches above the floor. (b) The tops of the windows should as a rule reach nearly to the ceiling.

55. French casements may be approved for some rooms.

56. Windows should never be provided for the sake merely of external effect. Clear glass should be used in the windows, and all kinds of glazing which diminish the light and are troublesome to keep clean and in repair must be avoided.

57. The upper panels of the doors may be glazed with clear glass, in order to facilitate supervision without disturbance to the work in the room.

58. The colouring of the walls and ceilings and of all fittings in the rooms should be carefully considered as affecting the light.

For Ventilation and Heating see Chapter VI., page 15.

59. *Furniture of Class-rooms.*—It is advisable to keep the class-room floor level throughout. If a platform is provided for the Teacher it should be about 6 inches high. Ample "blackboard" space should be provided.

60. (a) Seats and either desks or tables should be provided for all the children, varying in size according to the heights of the children, and placed at right angles to the window-wall. (b) The seats should be fitted with backs.

61. An allowance of at least 20 inches per older scholar and of 18 inches per younger scholar at each table, or desk, and seat is required.

62. The Board will consider proposals either for desks with seats fixed to them, or for tables with chairs, and also for flat or inclined writing surfaces. If desks are supplied they must be single or dual. All the furniture must be durable but easily moveable.

63. For the youngest children small tables with chairs are desirable.

64. In selecting seats attention should be paid to the following points:—

(a) The height from the floor to the seat should be such as to allow the child when seated to rest its foot on the ground or on a suitable foot-board. The upper part of the child's leg should be horizontal and the lower part vertical.

(b) The height from the seat to the writing surface should allow the child when writing to sit upright in an easy position.

(c) The edge of the writing surface should be almost directly over the edge of the seat. It is better that the writing surface should overlap the seat somewhat than that there should be any appreciable distance, measured horizontally, between the two edges.

(vi) *Class-rooms for Practical Work.*

65. When desired, one class-room (or in large Schools more than one) may be arranged for instruction in practical work. It is better to have no fixed furniture in rooms of this kind.

66. The room should be well lighted and should provide not less than 15 square feet of floor area for each scholar.

67. Such a room, if of suitable size and arrangement, may be reckoned towards the accommodation which the School is recognised as providing.

(vii) *Handicraft Rooms or Centres.*

68. In its plan, arrangements, lighting and ventilation a room for teaching Handicraft should be modelled on a workshop rather than on a School. Where it does not form part of the main building of the School its construction may be very simple. The roof may be either of lean-to or other ordinary form according to circumstances. Its height at the windows in front of the benches need not be more than 9 feet. A flat ceiling is not, as a rule, necessary.

69. (a) The lighting and ventilation must be ample. (b) The room should be warmed but need not be so warm as an ordinary class-room in which the children sit still. (See Section 131.)

70. A room for 20 scholars should have a floor-space of at least 600 square feet.

71. The floor should be of wood blocks or some other material that will not damage tools dropped upon it.

72. Handicraft centres or rooms, unless part of the premises of a School, should be provided with cloak-rooms and offices. Adequate provision should be made for the storing of timber.

73. In small schools one room may be used for both Cookery and Laundry Work as well as for Handicraft. In such a room the amount of floor space provided should be rather more than would be provided for instruction in any one subject alone.

(viii) *Rooms or Centres for Domestic Subjects.*

74. "Domestic subjects" may be taught either in rooms on the school premises, specially fitted up for the purpose, or in Centres built in a convenient position to serve one or more Schools.

75. All Centres should have their own lavatories and cloak-rooms; these are also necessary in the case of rooms used for school courses when they are distant from the school buildings.

76. *Cookery.*—(a) A Cookery room or Centre should be capable of accommodating 18 scholars at practical work. At least 25 square feet of clear floor space is required for each scholar under instruction at one time; (b) in addition, space is required for fixed apparatus, which should be reckoned roughly at about 5 square feet per head. (c) A north aspect is desirable; special arrangements should be made for ventilating, and, where necessary, for warming the room. (d) The room should be so placed that smells from cooking will not penetrate into other parts of the school. (e) A larder should be provided, the window of which should face north or east. (f) A coal-range is essential. If possible, a back boiler and cylinder should be attached. (g) Where gas is available, a gas-stove with flue pipe to carry off fumes from the oven should be fixed in a convenient position accessible on at least three sides. The gas hot-plate may be separated from the oven, and should be set at a height of about 2 feet 6 inches from the ground. (h) The accommodation afforded by the range and stove should be sufficient to allow every scholar to do practical cooking. (i) At least one sink, not less than 3 feet in length, with draining boards and hot and cold water laid on, should be placed in full view of the teacher and scholars. (j) Fixed furniture is undesirable; moveable tables providing 2 feet

per scholar with two additional tables are needed. A convenient size for the tables is 6 feet by 2 feet 6 inches wide by 2 feet 6 inches high. (k) Suitable seats should be provided. (l) Storage space, such as shelves, racks, and cupboards, is required.

77. *Laundry Work*.—(a) A Laundry room or Centre should be capable of accommodating 18 scholars at practical work. At least 25 square feet of clear floor space is required for each scholar under instruction at one time; (b) in addition, space is required for fixed apparatus, which should be reckoned roughly at about 5 square feet per head. (c) Special arrangements should be made for ventilating and, where necessary, for warming the room. (d) A coal stove for heating irons is necessary; this should allow sufficient space for the heating of two irons for each scholar. (e) A copper holding from 12 to 18 gallons is essential; there should be a supply tap above the copper, and also a tap for emptying it. (f) Washing troughs are not required; two sinks, not less than 3 feet in length, with draining boards, with hot and cold water laid on, are desirable, together with a slop sink, 12 inches deep, with a cold water tap above. (g) The aggregate table space should allow about 6 square feet per scholar; a convenient width for tables is 2 feet 6 inches. (h) Suitable seats should be provided. (i) Ample storage space is required. (j) Arrangements must be made by means of drying racks, or of clothes lines with pulleys attached, for the proper drying of clothes when this has to be carried out indoors.

78. In a Centre or School the same room may be used for instruction in Cookery and Laundry Work. The space provided by such a room should approximate to that required for a Cookery or Laundry-room, but additional floor space should be provided to allow of the storage of separate apparatus.

79. (a) The internal arrangements and equipment of buildings for "*Combined Domestic Subjects*" should reproduce so far as possible the conditions of an ordinary dwelling-house or flat, and should be large enough to provide sufficient practical work for the number of scholars to be taught in each class. (b) There should be one room for theoretical instruction large enough to accommodate all the scholars at the same time.

80. A large room, suitable for instruction in Cookery and Laundry-work, would also be suitable for the teaching of Combined Domestic Subjects with the addition of at least two adjoining rooms, each approximately 14 feet by 12 feet, furnished as a sitting-room and bedroom respectively.

81. *Housewifery* and "*Mixed Courses*" (see *Schedule III. of "the Code" for 1912*) can be taught in any of the buildings described above, provided that, in the case of "*Mixed Courses*," there is sufficient space to allow the necessary additional furniture to be conveniently arranged for suitable practical work.

(ix) *Rooms for Advanced Drawing.*

82. (a) Where the Board have approved the provision of a special room for the teaching of advanced Drawing, it should have an area of 30 square feet per scholar. (b) A North light is desirable.

(x) *Science Rooms.*

83. Where the Board have approved the provision of a room for teaching general Science, between 20 and 25 square feet of floor space should be provided for each scholar who is to receive instruction in the room. The room itself should be provided with benches of a simple character with water and gas laid on in suitable positions.

(xi) *Rooms for Younger Children.*

84. In small Schools the younger children should not be taught in the same room with the older children, as their instruction, if carried out on suitable lines, will disturb the discipline and teaching of the elder children. For similar reasons in Schools which admit children under five years of age, a separate room should be provided for them, unless the number is very small.

85. The room or rooms to be used by the younger children should always be on the ground floor.

86. From each room to be used by younger children there should be easy access to their playground and offices.

87. The number of places for which the rooms will be recognised will depend upon the arrangement of the seats and the furniture proposed, but in all cases at least 9 square feet of floor area per head is required. In cases where a Junior Department retains the children beyond the age of seven the Board may require some of the rooms to be reckoned on the 10 square feet basis.

88. There should be an ample supply of "blackboard" space, which may be arranged round the walls, provided that it is within easy reach of the children.

89. A room for very young children should (a) always have an open fire, and (b) be maintained at a temperature of about 60 degrees.

90. *Free Space*.—Except when their number is very small, the younger children should always be provided with a space in which they can march or exercise indoors.

91. This space is most conveniently provided by means of a playroom or small Hall reserved for the exclusive use of younger children. Such a room should be effectually separated from the class-rooms in order that the noise in one room may not disturb the teaching in another.

92. Halls which are used by older boys or girls cannot be considered as providing for the needs of younger children also, unless there is also a playroom.

93. Where the number of younger children is not sufficient to necessitate the provision of a separate play room, free space can be provided by furnishing a room with light moveable tables and chairs instead of desks. Not less than 12 square feet of floor area per head is required in such a room. When there are two or three rooms for younger children, it is convenient to so arrange them that they can be thrown into one.

(xii) *Teachers' Rooms.*

94. (a) As a general rule separate accommodation should be provided for the teachers apart from the class-rooms. (b) In large Departments it is desirable to have separate rooms for the Head Teacher and for the staff. (c) Where there is a considerable staff of both sexes, separate Common-rooms will be desirable for each sex.

95. (a) Cloak-rooms, lavatories and closets for teachers are required. (b) For women Teachers these must be placed inside the main building. (c) Where women Teachers are employed for the lower classes of Boys' Departments, suitable lavatories and closets must be provided for them in the building. (d) Closets for Teachers should not open out of the Teachers' rooms. (e) In some Schools provision for the bicycles of Teachers may be desirable.

(xiii) *Store Rooms.*

96. There should be sufficient space for storage, not only for stationery, but also for the apparatus used in practical work of all kinds. If separate store rooms are provided, they should be placed conveniently near the Teachers' rooms. Storage space can be most economically provided by designing cupboards as part of the buildings.

(xiv) *Rooms for Meals.*

97. Where the Board have given their approval, one or more rooms may be provided for the use of children to whom mid-day meals are supplied. It is not desirable that the class-rooms, "main-room" or Hall should be used for this purpose, owing to the disturbance of School arrangements entailed by the preparation and clearing up of the meals, and by the necessity of keeping the rooms clean. A structure of the simplest kind, well ventilated, will suffice.

98. The rooms should be of sufficient size to seat each child comfortably and to give space for waiting.

99. (a) Unless the meals are prepared at a central kitchen or elsewhere than on the school premises, it will be necessary to build a small, well-ventilated kitchen, and a pantry for crockery utensils and dry stores. (b) The dimension of a kitchen to provide 100 meals per diem should not be less than 200 square feet in floor area.

100. In country Schools, where many of the children remain to a mid-day meal, it is convenient to have a room in which they can take it. The Board would also approve suitable arrangements for providing a simple mid-day meal or for heating food.

(xv) *Rooms for the use of the School Medical Officer.*

101. Rooms may be provided for the purposes of the School Medical Service. A convenient arrangement consists of (a) one room for the actual work of inspection, which should have a space of 20 feet in one direction for eye testing; (b) a small waiting room, and a lavatory and water-closet conveniently placed.

(xvi) *Cloak-rooms.*

102. (a) These must be separate for each sex. (b) It is desirable to provide larger cloak-rooms for a given number of girls than for the same number of boys. (c) Cloak-rooms should not be passages, and should be cut off from rooms used for teaching. They should be placed conveniently near the entrances. (d) They should be amply lighted from the end, and should not be placed against the gable wall when this is required for windows giving light to the rooms used for teaching. (e) There should be separate means of ingress and egress so that the children can enter and leave the cloak-room without confusion or crowding. The floors should be of asphalt or other impervious material, and the walls should be lined to a height of about 5 feet with glazed brick, matchboarding, or other suitable material.

103. (a) Through ventilation and disconnection are essential, so that smells are not carried into the School. (b) Ample space is needed immediately outside a cloak-room.

104. (a) There should be gangways at least four feet wide between the hanging rails. (b) Hat pegs should be provided in not more than two tiers, not directly one above the other. (c) In the case of boys, hat pegs on the same tier should be 12 inches apart; in the case of girls and infants, 18 inches apart. (d) The lineal hanging space necessary to provide a separate peg for each child in two tiers is thus 6 or 9 inches.

105. Cloak-rooms may be fitted with doors or gates, so that they can be locked up if necessary.

106. (a) The cloak-rooms should be warmed. (b) When possible, arrangements for drying wet clothes are valuable.

(xvii) *Lavatories.*

107. (a) What is said in Sections 102 and 103, above, applies also to lavatories. (*See also Section 95.*)

(b) Lavatory basins should be provided at the rate of two for every 50 children. An equivalent allowance should be made if troughs with sprays are used. (c) In addition to the supply to the basins a tap for drawing water should be provided.

(xviii) *Caretaker's Cupboards, &c.*

108. A slop sink and water-tap for use by the caretaker are desirable. Provision should be made for any accommodation in the way of cupboards, &c. that he will require. Heating chambers should be properly ventilated and should be so arranged that the fuel is easily accessible.

(xix) *Closets and Urinals.*

109. (a) Closets within the main school building are not desirable, except for use by Teachers (*see Section 95*). (b) All others should be completely disconnected from the school. (c) Care should be taken that in no case are closets placed in such a position that they can be seen into from any window.

110. (a) The closets and the approaches to them must be wholly separate for older boys and girls. (b) When the entrance to the closets is screened, there should be an entrance at each end of the screen.

111. The closets must not be placed in such a position as to make it necessary for the children to pass the Teacher's house in order to reach them.

112. (a) Every closet must be not less in the clear than 2 feet 3 inches wide, nor more than 3 feet. (b) Each must be fully lighted and ventilated, and have a door. (c) The door should be at least 3 inches short at the bottom, and at least 6 inches short at the top. (d) More than one seat cannot be allowed in any closet.

113. The following table shows approximately the number of closets needed:--

	(a) For Girls.	(b) For Boys (In addition to Urinals.)
Under 30 children - - - - -	3	1
" 50 " - - - - -	4	2
" 70 " - - - - -	5	2
" 100 " - - - - -	6	3
" 150 " - - - - -	8	3
" 200 " - - - - -	10	4
" 300 " - - - - -	14	5
" 400 " - - - - -	18	6

114. If a block of offices is provided common to younger children of both sexes, there must be urinals for the younger boys, which with their closets must be partitioned off from the closets provided for the younger girls. If the number of children in the school is not large, a block of offices common to older girls and younger children can be approved; a proper proportion of the closets must then be made of a suitable height for children under eight years old.

115. (a) There should be urinals in the proportion of 10 feet per 100 boys. (b) Urinals should always be divided off from the closets.

116. Earth closets of an approved type may be employed in country districts, but drains for the disposal of slop and surface water from the school will still be necessary.

117. *Drains.*—The arrangements for sewage disposal, being a matter of Public Health, will in all cases of Schools for which a loan is required be considered by the Local Government Board. Attention is drawn to the memorandum issued by the Local Government Board on the arrangements for drainage and disposal of waste matter at Public Elementary Schools, which is attached to these Rules as Appendix III. (See pages 20–22.)

118. In the case of voluntary Schools the Board of Education will satisfy themselves that the principles set out in the above-mentioned memorandum are duly observed.

(xx) Baths.

119. (a) The Board will consider a proposal for the installation of shower baths or spray baths of a simple and effective kind in connection with a School where difficulty arises in providing facilities for cleansing children otherwise. (b) The Board will also be prepared to accept the provision of such baths in substitution for a portion of the lavatory accommodation required in the scale fixed in paragraph (xvii). (c) Such baths should provide for the bathing of 12 to 20 children at one time, and should have simple dressing boxes or partitioned spaces, and a drying chamber and storage for towels.

CHAPTER V.—TEACHER'S HOUSE.

120. (a) The house (if any be provided) for the Head Teacher should be planned as a private residence and should contain not less than one sitting-room, a kitchen, a scullery, a bathroom, and not less than three bedrooms.

121. (a) The house must have its own offices and yard. (b) There must be no internal communication between the house and the school.

CHAPTER VI.—VENTILATION AND HEATING.

*(See also Sections 19 and 48-58.)**Ventilation.*

122. Adequate means for ventilating all rooms used for teaching must be provided, not only for admitting fresh air during use, but for flushing the rooms effectually during the intervals.

123. The inlets for fresh air should be large and well distributed, and be provided with some arrangement to divert the incoming air from striking directly on to the children and Teachers.

124. In order to ensure a sufficient movement of the air, there should be openings on opposite sides of the room, and these should be into the outside air.

125. Where the rooms are properly cross ventilated, ceiling extracts will not be required.

126. (a) One of various economical and effective plans is to have the lower panes of the windows arranged to open inwards as "hopper" inlets with side pieces, the upper parts of the windows being hung on centres to swing, in order to give as large an opening as possible. (b) The windows should be arranged so that at least half their area can be open at once. (c) They may be arranged so that the whole space can be open.

127. Openings behind hot-water radiators, and ventilating grates, are useful adjuncts in cold weather, but do not obviate the need for an ample supply of properly constructed opening windows.

128. Combined systems of heating and ventilation in which air raised to a sufficient degree to warm the rooms is used for ventilation are not generally desirable in a school. The stimulating and invigorating effects of fresh, cool air are lost, and the children become accustomed to sit with closed windows.

129. (a) In buildings of more than one storey the ventilation requires particular attention. (b) As far as possible, long trunks and flues for the admission of air, which are difficult to keep clean, should be avoided. (c) Outlets opening into chimney flues or ceiling ventilators do not work well without some mechanical aid.

130. Generally, the best results will be obtained by providing ample heating power, and making full use of well-arranged windows to secure cross-ventilation.

Heating.

131. (a) The heat supplied to the School should be moderate and evenly distributed, so as to maintain a temperature of from 56° to 60° in the rooms. (b) The amount of heating required should be considered carefully in reference to the system of ventilation proposed, for the full use of fresh air openings is largely governed by the power of quickly warming the room. Where cross ventilation is provided a single fire-place will be insufficient to warm the room thoroughly. (c) Where windows are provided on two sides of a room, 25 to 30 square feet of heating surface per 1,000 cubic feet should be secured. (d) In a large room heated by an open fire, the heating should be supplemented by hot-water pipes on the side furthest from the fire.

132. When the heating is by means of hot water, it should be at medium or low pressure; high-pressure water and steam heating cannot be approved.

133. Fireplaces and heating apparatus should as far as possible be placed in parts of the room where they will be out of the way of the teachers and scholars. (See Section 46.)

134. Slow combustion stoves with long flue-pipes cannot be approved.

135. Stoves should be of a pattern with an open fire, and have proper chimneys into which the flue pipe can be directly taken.

136. Gas radiators or stoves are not approved for warming rooms used for teaching unless they are provided with flues.

Protection from Sun.

137. Windows which face the sun should have blinds.

CHAPTER VII.—CONSTRUCTION AND MATERIALS.

(i) PERMANENT BUILDINGS.

Foundations.

138. (a) The vegetable soil within the area of the building should be removed, (b) the whole space should be covered by a layer of concrete not less than 6 inches thick, and, (c), if solid floors are not used, air bricks should be inserted in opposite walls to ensure a through current of air under floors for ventilation to joists.

139. Except where hard rock, gravel, or chalk bottom is found, concrete foundations must be provided under all new walls.

Walls.

140. If the external walls of a School are of brick they should be at least one brick and a half thick; if they are of stone, they should be 20 inches thick. Where hollow walls are proposed, one wall should be at least 9 inches thick with a 2-inch cavity between it and the other wall (*but see Section 142*).

141. All walls, not excepting fence walls, should have a damp-proof course just above the ground line.

142. For single-storeyed buildings the Board will be prepared to consider proposals for walls of less thickness, as for instance a 9-inch solid brick wall or an 11-inch hollow brick wall, strengthened where necessary with piers. Such walls should be treated with rough cast or cement, or, in the case of hollow walls, a second damp course should be placed in the inner wall one course of bricks above that through the whole wall.

Roofs.

143. Great care should be taken to render the roofs impervious to cold and heat.

144. Roofs open to the apex are not approved. All class-rooms must be ceiled either at the wall plate or not less than half way up the roof. (*See also Sections 48 and 49.*)

Floors.

145. (a) In a School of more than one storey special care must be taken to render the floors as far as possible sound-proof and fireproof. (b) Solid floors should be used on the ground floor.

(ii) TEMPORARY BUILDINGS.

146. In special circumstances the Board are prepared to sanction the erection of schools of a lighter and less permanent construction; as for example, in colliery districts where, owing to mining operations, there is no site available upon which a building of the ordinary type can be safely erected; or where the population is not permanent, as during the progress of a large piece of engineering work, or in the neighbourhood of a mine likely to be soon worked out; or where temporary accommodation is required pending the erection or rebuilding of a school; or in the case of very small country schools or of buildings for manual instruction, cookery, and similar purposes only.

147. When such buildings are proposed for recognition for a considerable period, they must be placed upon properly constructed foundations, with concrete under the floors, &c., and conform generally to the requirements of an ordinary school building.

148. When a wooden building is proposed, the wood should be chemically treated under pressure.

149. (a) In iron buildings careful precautions are required to guard against extremes of temperature, and unless the building is purely temporary it is well to roof it with some form of thin non-conducting tiles. (b) In any case a ceiling should be provided with an air space between it and the roof. (c) The walls should be lined with felt or some other material capable of absorbing heat and of giving protection against cold.

150. The Board will be prepared to consider and discuss any proposals for the employment of materials or of methods of construction other than those usually employed. (*See the Prefatory Note to these Regulations, page 4.*)

CHAPTER VIII.—WATER SUPPLY.

151. (a) In all Schools adequate and wholesome drinking water must be readily available for the scholars. (b) The supply should not be placed within the enclosure of the closets.

152. In cases where it is not taken from the mains of an Authority or Company authorised to supply water, care must be taken to ascertain (a) that the supply will be sufficient and (b) that the water will be of suitable character and not liable to pollution in any way, as, *e.g.*, by surface drainage, or by leakage from sewers, drains, cesspools, or other receptacles.

153. There should be no direct communication between any pipe or cistern from which water is drawn for domestic purposes and any water-closet or urinal.

154. Any cistern to be used for the storage of water should be water-tight and be properly covered and ventilated, and should be placed in such a position that the interior may be readily inspected and cleansed.

155. Where water-pipes are used, they should be so laid or fixed as to be properly protected from frost, and so that in the event of their becoming unsound the water conveyed in them will not be liable to be fouled, or to escape without observation. Provision should also be made for completely emptying any exposed pipes and cisterns.

156. All water-closets and urinals should be provided with proper service cisterns, which together with the outlets from them, are capable of providing a sufficient flush.

CHAPTER IX.—PLANS AND PROCEDURE.*

General.

See also the "Code of Regulations for Public Elementary Schools," 1912, Articles 17 to 20.

157. Newly erected buildings, unless for good reason, should be planned in accordance with the principles set out in the "Building Regulations," and the Board may refuse to recognise a School, if in their opinion these principles have been departed from unnecessarily.

158. Before they recognise enlargements or alterations (other than minor alterations as defined below) of premises which have been already recognised, the Board must be satisfied, by the submission of properly drawn plans and estimates, that the proposals are satisfactory.

159. Minor alterations may be made without the submission of plans to the Board, if the approval of the Inspector has been previously obtained by the Local Education Authority, and, in the case of Voluntary Schools, by the Managers. But no alteration of the premises of a school will be regarded as a minor alteration if it affects the area of the rooms used for teaching, or diminishes the light or if it is proposed to meet the cost out of a loan.

Bye-laws.

160.—(a) Attention is directed to section 3 of the Education (Administrative Provisions) Act, 1911, which provides as follows:—

"The provisions of any bye-laws made by any local authority under section 157 of the Public Health Act, 1875, as amended by any other Act, with respect to new buildings (including provisions as to the giving of notices and deposit of plans and sections), and any provisions in any local Act dealing with the construction of new buildings, and any bye-laws made with respect to new buildings under any local Act, shall not apply in the case of any new buildings being school premises to be erected, or erected according to plans which are under any regulations relating to the payment of grants required to be, and have been, approved by the Board of Education."

(b) The Board have no power to give an authoritative interpretation of this section; and the question whether the section applies in any particular case is a matter for consideration by the promoters.

* The substance of this chapter is also issued separately as "Rules 2."

(c) The Board will of course expect that in respect of sanitary matters the plans will come up to the standard set by the Local Government Board's model bye-laws, or that departures from that standard will be specially indicated and justified.

Requirements as to Plans.

161. The plans and other information set out below must be furnished in support of proposals for new buildings or for improvements of existing buildings. Plans which do not fully comply with these requirements cannot be considered.

(i) A block plan of the site, drawn in ink to a scale of 20 feet to an inch. This plan must indicate:—

- (a) The position of the school buildings.
- (b) Out-buildings.
- (c) Playground.
- (d) Drains (collateral and main), with their fall and depth below ground.
- (e) Entrances.
- (f) Boundary walls, or fences, and their nature.
- (g) Roads.
- (h) The points of the compass.
- (i) The levels of the ground at the principal points.
- (k) The area of the site in square yards.

(N.B.—For approval of a site the plan should show (g), (h), (i), and (k), and should be accompanied by *Supply Form 1*, to be obtained by application to the Board.)

(ii) (a) A Plan of each Floor of the School-rooms (and Teacher's or Caretaker's House, if any) drawn in ink to a scale of 8 feet to an inch. The internal fittings of the rooms (fireplaces, groups of desks, &c.) must be accurately shown. The plan should also state whether the rooms are intended for older or younger children and whether for boys or girls or for both mixed, and the total number of scholars, boys, girls, mixed or younger children intended to be provided for on each floor.

(b) In cases of enlargement, a plan showing the buildings as they exist is needed.

(iii) Sections and at least four elevations, also drawn in ink to a scale of 8 feet to an inch. The ceiling, the positions of window-heads in relation thereto, and the mode of ventilation must be shown.

N.B.—(a) Pencil drawings cannot be received, but coloured tracings in ink on tracing linen may be submitted while plans are in the preliminary stage, so that suggested alterations can be adopted without difficulty or expense. Such plans may be drawn to a scale of 16 feet to 1 inch. The Board's final approval will not in any case be given to preliminary plans, and the full plans described above will always be required.

(b) Diagrams are of no value and cannot be accepted.

(c) In the case of enlargements or alterations the whole site and the existing building should be as accurately shown in every respect as the proposed changes, and in such a manner that any change of numbers can be ascertained.

(d) All plans should be dated, with the scales drawn on and dimensions figured.

(e) All plans should be submitted on tracing linen or other material which can be folded.

(iv) A Section of each size of Desk (if any) proposed to be used, drawn to a scale of $1\frac{1}{2}$ inches to a foot.

(v) A Specification.

(vi) An Estimate of the total expenditure proposed. (In cases where a loan is required this estimate must be given in duplicate on a form which will be supplied by the Board.)

Procedure for the Submission of Plans to the Board.

162. (a) In the case of a new building or of extensive alterations, preliminary or sketch plans drawn either to $\frac{1}{16}$ or $\frac{1}{8}$ inch to a foot and accompanied by a rough estimate based upon the cubic contents of the building should be submitted to the Board.

(b) When the scheme and approximate estimate have been provisionally approved the full plans should be prepared and should be submitted to the Board with the other particulars set out in section 161—

(i) In cases where application will be made to the Local Government Board for a loan, when the Local Education Authority are in a position to say exactly what the total cost of the scheme will be, either from tenders received or upon a close estimate, the forms supplied by the Board should be filled up and sent with the full plans for final approval. One of these forms is sent on to the Local Government Board in all cases in which a loan will be required so that it must be regarded as a complete statement of the amount of the loan for which application will be made. In connection with the application to the Local Government Board for a loan attention is directed to Appendix II.

(ii) In cases where no application is to be made for a loan the forms referred to in (i) will not be required.

(c) Plans must, except in special circumstances, be submitted to the Board through the Local Education Authority, unless that Authority has approved the direct submission of plans to the Board by an Architect or by the Managers. In such cases the covering letter should refer to the direction or approval of the Local Education Authority, and failing this the Board may decline to consider the plans.

(d) Plans sent to the Board and correspondence on them should invariably be addressed to the Secretary, Board of Education, Whitehall, London, S.W., and not to any Officer of the Board by name.

Given under the Seal of the Board of Education this tenth day of July, 1914, and presented to Parliament pursuant to the 97th section of the Elementary Education Act, 1870, to lie on the Tables of both Houses of Parliament for one month.

L.S.

L. A. SELBY-BIGGE,
Secretary.

APPENDICES.

I.—Examples of School Organisation.

The principles laid down in Section 18 with regard to the organisation of a School into Departments may be illustrated by the following examples :—

(a) In urban areas local authorities not infrequently have to provide accommodation for 1,000—1,100 children on the same site. As a rule, this can best be done by building three Departments, for boys, girls, and younger children respectively, of approximately equal size. The exact figures will depend upon the age of admission and the leaving age for the district, and the extent to which the older children pass on to higher schools. It is usually better, particularly if children under five years of age are admitted in any numbers, that the accommodation of the Department for younger children should be appreciably higher than that of the Senior Departments. It will not then be necessary to transfer children from the Junior to the Senior Department before the age of $7\frac{1}{2}$ or 8. Transfer at an earlier age, *e.g.*, $6\frac{1}{2}$ years, is to be deprecated on educational grounds. On these principles the organisation of the School would be :—

boys, 360 ; girls, 360 ; younger children, 380 ;
or, if children are admitted at 3 to 4 years of age,—
boys, 350 ; girls, 350 ; younger children, 400.

The following organisation is sometimes found, but cannot be recommended :—

senior mixed, 300 to 350 ; junior mixed, 300 to 350 ; younger children, 350 to 400.

The curriculum in a Mixed Department of this size for older children cannot be made really suitable to the needs of the boys and girls respectively without considerable difficulties of organisation. Further, the arrangement has the disadvantage of introducing a second break in a child's school life at about the age of 10 or 11.

(b) In congested areas, where land is costly, it is sometimes necessary to provide accommodation for as many as 1,500 to 1,700 children on the same site. A convenient method of doing this is to build four Departments of approximately equal size, *i.e.*, two parallel Junior Departments, each of which will contain younger children up to about the age of 9, and separate Senior Departments for boys and girls, *e.g.*,—

boys, 400 ; girls, 400 ; $\left\{ \begin{array}{l} \text{juniors A, 400.} \\ \text{juniors B, 400.} \end{array} \right.$

(c) In smaller towns and rural areas it is sometimes necessary to provide accommodation for about 750 children of all ages. In such a case, an organisation such as :—

boys, 225 ; girls, 225 ; younger children, 300,
(with transference from the Junior School at about the age of 8) ;
would be preferable to,
mixed, 450 ; younger children, 300.

(d) Occasionally in a rural area or small town it is necessary to provide for about 400 children of all ages. Where the number is as small as this, the most efficient and economical organisation has usually been found to be :—

mixed, 240 ; younger children, 160 to 200.

II.—Loans.

In the case of all applications for sanction to loans, the Local Government Board should be furnished with—

1. A copy of the resolution of the Council directing the application for sanction to the loan required, and giving the name of the proposed school ;
2. A copy (on tracing cloth or paper mounted on linen) of the block plan approved by the Board of Education.
3. A full explanation of the difference, if any, between the amount of the loan desired and the amount of the estimate approved by the Board of Education.

III.—Memorandum by the Local Government Board on the arrangements for DRAINAGE and disposal of waste matters at public elementary schools for which loans under the Board's sanction are required, with especial reference to schools in country places where sewers and water services are not available.*

At a school, even where no one resides on the premises, provision will have to be made for the disposal and removal of the following matters :—

- 1st. Excremental matters. (On the boys' side the urine may be in part dealt with separately from the fæces, but this will not usually be practicable on the girls' side.)
- 2nd. Ashes and other dry refuse.
- 3rd. Waste water, as from lavatories and floor washing.
- 4th. Surface-water from roofs, yards, &c.

* This Memorandum is also issued separately by the Local Government Board, and may be purchased, either directly or through any Bookseller, from Wyman and Sons, Ltd., Fetter Lane, E.C., and 54, St. Mary Street, Cardiff ; or H.M. Stationery Office (Scottish Branch), 23, Forth Street, Edinburgh ; or E. Ponsonby, Ltd., 116, Grafton Street, Dublin ; or from the Agencies in the British Colonies and Dependencies, the United States of America, the Continent of Europe and Abroad of T. Fisher Unwin, London, W.C. Price One Penny.

The best means for disposing of these several matters will vary in different cases according to facilities of drainage and water supply and other local conditions, and in choosing the most suitable arrangements careful regard will have to be paid to the circumstances of each case.

I.

Where an efficient system of public sewers and a constant water supply under pressure are available water-closets should be provided and their contents conveyed into the public sewers by drains, which should also receive the liquid waste from urinals, lavatories and sinks, and where permitted, the surface-water.

Water-closets should be of a suitable and efficient type, with adequate separate flushing arrangements for each closet.

II.

Where a water supply for flushing is available but there are no sewers, if water-closets are adopted they should be drained into a watertight tank with an overflow discharging on to an efficient filter or a suitable area of land for irrigation, or into a watertight cesspool without overflow, which should be so arranged that the contents can be readily removed by means of a suitable pump into a tank cart, or by some other efficient method.

In no case can disposal of sewage by subsoil irrigation or any system of leakage into the subsoil or by its discharge untreated into a ditch or watercourse be regarded as satisfactory.

Where drainage is into a tank or cesspool, rain-water should be excluded from the sewage with a view to lessen its volume, and in the case of a cesspool to avoid the need for frequent emptying.

III.

Where sewers are available but no supply of water is laid on for flushing, it will generally be best to adopt some form of dry closet as described hereafter. Hand-flushed water-closets do not work satisfactorily.

IV.

Where neither sewers nor water service are available, as is often the case in small villages, some form of dry closet will be necessary. The closets may be furnished with movable receptacles (pail closets) or with small fixed receptacles on the lines set out in the Board's Model Byelaws with respect to New Buildings in Rural Districts, *i.e.*, the receptacle should be of small capacity and water-tight construction with bottom at least 3 inches above the level of the ground, and with arrangements to facilitate the application of dry earth or other absorbent and the removal of the contents. Privies with large deep pits or open middens cannot be approved.

The contents of the closets should be kept dry by excluding rainfall and, as far as practicable, all other liquid, and by the use of a suitable absorbent, which will be especially needed in the girls' closets. The absorbent may be dry earth, ashes, sawdust, peat dust, or road sweepings dried and sifted. (The ashes produced at a school are not usually sufficient in quantity alone, and there are none in summer.) A shed or other suitable accommodation should be set apart for the drying and storage of the absorbent.

Arrangements will have to be made for the supply and application of the absorbent, and for the frequent periodical removal and disposal of the contents of the closets.*

Even where dry closets are provided and rainwater is separately dealt with, there will still be need for some means of disposing of foul waste liquids as from urinals, sinks, lavatory basins, and wash pails. If sewers are not available these liquids may be taken by drains to a filter or irrigation area, or into a small cesspool constructed as already mentioned.

In some instances, where there is no ground belonging to the school sufficient for the placing of a tank or cesspool, it may be necessary to use movable receptacles for the reception of waste liquids from lavatories, urinals, &c., the receptacle for urine being filled with some absorbent such as sawdust. Such expedients, of course, require constant attention—at least daily—if nuisance is to be avoided, and in the case of new schools and, where possible, in all other cases, sufficient ground should be provided to render resort to them unnecessary.

Where there is no public water service, rain-water from the roofs may often be usefully collected for washing purposes, being softer than well-water. Where not so collected, if there is no sewer into which to

* The following arrangement of earth-closets has been found to work satisfactorily at some rural schools:—

At the back of the range of closets is a covered "earth chamber," extending the whole length of the range and measuring some seven feet from front to back. At the back the chamber is partially divided by a dwarf wall into two compartments—one for dry and the other for used earth—leaving space for a gangway between these compartments and the backs of the closets. In front the floor of the earth chamber is continued into the space under the closet seats with a slope towards the centre of the chamber. The space under the seats is open at the back for its full width to the earth chamber. Down the gangway runs a channel for urine which discharges into a small tank; this channel and tank are filled with peat moss or sawdust to absorb the urine; when the absorbent is saturated it has to be removed, and fresh material substituted.

The mode of use is as follows:—

One or more loads of dry earth are placed in one of the compartments, and a layer of this earth six inches deep is spread on the floor under each closet seat, so as to receive the excreta upon it. Once a week, conveniently on Saturdays, the faecal matter is covered up with a fresh layer of the earth until in course of time the heap reaches a depth of about two feet. It is then removed to the empty compartment to dry, and a fresh layer of earth is spread under the seats. This process is repeated until all the earth has been dried longest. When this process is properly carried out it has been found that faeces and paper are inoffensively disintegrated by the action of the earth with its contained organisms, and that the same earth can be used over and over again without the need for additional removal.

Where this system is adopted careful attention must be given to the following points:—

1. Impervious materials must be used in all places where earth or faecal matter is liable to come in contact with the structure. Wood should not be used.
2. The earth chamber should be properly roofed to exclude rainfall, and well ventilated. Its floor should not be below the ground level.
3. All urine should be conveyed away from the earth chamber, received in an absorbent, and removed.
4. Suitable dry earth should be used, preferably top soil from a field or garden "in good heart." Ashes are unsuitable.
5. Careful and intelligent attention must be paid to the working of the closets by a person specially detailed for this purpose and the earth must be shifted and redistributed at least once a week. It must not be allowed to get saturated with liquid. A door for access to the earth chamber will be needed, but should be kept locked when not in use.

take it, it should be excluded from the sewage, and may be discharged in any convenient method, as into a ditch or watercourse, or, where the soil is porous, into a soakaway pit at a sufficient distance from the building so as not to cause dampness of the foundations.

Where possible, it is desirable that the sewage from the schoolmaster's house should be dealt with by the same system as that from the school buildings, but where this is not feasible one or other of the methods for the disposal of excretal matters and liquid waste already mentioned should be adopted.

Where sewers and public water service are not available, it is desirable that there should be in connection with the house plenty of garden ground on which to dispose of refuse matters.

GENERALLY.

In connection with the drainage and sanitary arrangements for schools, the following points should receive special attention.

Generally.—The drainage and closet arrangements should be planned on the general lines embodied in the Model Byelaws of the Local Government Board.

Drains.—The drains for foul water should be laid in straight lines between inspection chambers, and so as to be quite watertight; they should be properly ventilated and be disconnected, by means of a trap in an inspection chamber, from any cesspool or covered tank into which they discharge. Should a drain have unavoidably to be laid near a well or other source of water supply, the drain, if of stoneware pipes, should be surrounded with cement concrete at least 6 inches in thickness; or should be of cast-iron pipes with lead joints. It is desirable that pipes of 4 inches diameter should have a fall of not less than 1 in 48, and 6-inch pipes of not less than 1 in 60.

Cesspools and Tanks should have walls and floors so constructed as to be quite watertight (this also applies to the floors of filters and so much of their external walls as are below the surface of the ground). They should be not less than 50 feet distant from the school or from any dwelling-house, and should be as far as possible from any well or other underground source of drinking water which might be in danger of being polluted by leakage. The sewage disposal works should be fenced in so that they cannot be interfered with by the children.

Cesspools and covered tanks should be properly ventilated, and provided with a suitable pump, and should be in positions conveniently accessible by a tank cart for the purpose of emptying.

The capacity of tanks which overflow on to a filter bed or irrigation area need not exceed from one to two days' volume of sewage;* but cesspools which have to be emptied from time to time should be of larger capacity. Filter beds should be not less than 2 feet 6 inches in depth, and the filtering medium should consist of some hard and clean material, care being taken that the liquid is evenly distributed over the surface of the filter bed by a suitable apparatus. Filters should in all cases have free outlets so as to drain the whole of the filtering media. If no land treatment is provided, the area of the filter bed should be sufficient to deal with the liquid at a rate not exceeding 40 gallons per square yard per day for a filter 2 feet 6 inches deep or at a proportionally greater rate for a deeper filter. When subsequent land treatment of the effluent is adopted, a rate of filtration twice as rapid as the above may be allowed.

Irrigation Areas.—Land for irrigation should have an adequate area and suitable soil, and should be at a sufficient distance from any inhabited building or sources of water supply, so as not to create a nuisance or to pollute the water. The nature of the soil should be stated in the application.

Land.—Where land outside the school premises is required for tanks, filter beds, irrigation, &c., its use should be secured by a definite legal agreement, and if the works are to be carried out by means of a loan the land should be purchased or leased, the purchase or lease being made conditional on the Board's sanction being obtained to the loan.

Need for Supervision.—It is very important that the sanitary arrangements of schools should be kept in a cleanly and proper condition, not only for the sake of the health of the children while at school, but also as an object lesson in cleanliness which they may carry into practice in their own homes. But this cleanly condition cannot be maintained without supervision. It may be necessary to employ an efficient attendant to see to the cleanly keeping of the sanitary conveniences as well as of the school premises generally. This will be especially necessary at schools where, in the absence of sewers and water service, methods have to be adopted which involve hand removal. Thus, where dry closets are adopted, it will be necessary to appoint some one to supply absorbents, to empty the closets at frequent and regular intervals—say every Saturday, or oftener if necessary—and to remove the contents to a suitable place of deposit. Where a cesspool is used the contents will have to be pumped out from time to time and distributed over land in a proper situation. Filter beds and irrigation areas will also need supervision from time to time to keep them in proper working order.

Local Government Board,
August, 1913.

* This may generally be assumed at $2\frac{1}{2}$ gallons per head, of the accommodation provided (including teachers) at the school if w.c.'s are used, or at 1 gallon per head where only urine and slop water have to be dealt with.

